

What is claimed is:

1. A stabilizer for lumbar/sacral junction and comprising:
a plate having a front wall and a foot portion projecting rearwardly from a lower portion of the wall and having a bottom surface;
two upper holes in the wall to receive screws for passage into an L5 vertebra; and
two lower holes in the wall and extending through the bottom of the plate to receive screws for passage from the front wall through said foot portion into the sacrum.
2. The stabilizer of claim 1 and wherein:
said plate has front wall recesses, one for each of said lower holes and providing seating surfaces for heads of screws when received in said lower holes.
3. The stabilizer of claim 2 and wherein:
said seating surfaces are inclined inwardly whereby screw heads when received thereon are self-centering.
4. The stabilizer of claim 3 and wherein:
said inwardly inclined surfaces are curved downwardly toward entrance ends of said lower holes.
5. The stabilizer of claim 3 and wherein:
said lower holes have axes which converge as they extend below the bottom of the plate.
6. The stabilizer of claim 5 and wherein:
said axes lie in a plane generally parallel to the lower portion of the front wall.
7. A stabilizer for the lumbar/sacral joint of a higher vertebra and comprising:
a plate having an upper portion and a foot portion,
the upper portion being curved in a horizontal plane for fitting to an L-5 vertebra and the foot portion being shaped to reside in anterior inter-vertebral space between L-5 and S-1 and to be fittingly received and rest on the sacrum superior end plate;
at least one fastener through the upper portion and generally perpendicular to the upper portion for anchorage to L-5;

a second fastener through the foot portion at an angle for reception and extension in cortical bone of the sacrum at the sacral promontory, and for engagement in cortical bone at the S1-S2 junction.

8. The stabilizer of claim 7 and further comprising:
third and fourth fasteners, said third fastener extending through the upper portion and generally perpendicular to the upper portion;

said fourth fastener extending through said foot portion at an angle for reception and extension in cortical bone of the sacrum at the sacral promontory and for engagement in cortical bone at the S1-S2 junction.

9. The stabilizer of claim 8 and wherein:

said second and fourth fasteners are elongate and have longitudinal axes and are oriented with their axes converging from their respective points of departure downward from a bottom surface of said foot portion.

10. The stabilizer of claim 7 and wherein:

said foot portion has a front wall and a bottom wall; and

said foot portion has an aperture therethrough having a fastener entrance through said front wall and a fastener exit through said bottom wall.

11. The stabilizer of claim 10 and wherein:

said aperture has a portion intermediate said entrance and exit, and a curved, fastener-head seating surface converging from said front wall to said intermediate portion.

12. The stabilizer of claim 10 and wherein:

said plate is made of a biocompatible alloy, and said foot portion thereof is adapted to load bearing on ring apophysis of the sacrum, the upper portion and foot portion being shaped in an anterior aspect to minimize contact with great circulatory vessels in the region of L5-S1.

13. A method of stabilizing a lumbar-sacral junction for fusion comprising:
installing a foot portion of a plate partially into the anterior portion of
intervertebral space between L5 and S1;
installing screws from the front of the plate through holes in an upper portion of
the plate into L5; and
installing screws from the front of the foot portion of the plate downwardly
through the foot portion and out the bottom of the foot portion into S1.
14. The method of claim 13 and further comprising:
installing said downwardly-installed screws through the foot portion on convergent
paths in S1.
15. The method of claim 14 and further comprising:
extending said downwardly-installed screws through the S1-S2 junction.
16. The method of claim 14 and further comprising:
seating the downwardly-installed screws in the plate and pulling L5 and S1 toward
each other and compressing fusion material in said intervertebral space.
17. The method of claim 13 and further comprising:
seating a bottom surface of said foot portion atop the superior end plate of S1.
18. The method of claim 17 and further comprising:
engaging fusion material by the inferior end plate and superior end plate of L5 and
S1, respectively, and
compressing fusion material between said end plates posterior to said foot portion
in the L5-S1 junction while pulling L5 and S1 toward each other.
19. The method of claim 16 and further comprising:
providing anti-backout devices for said downwardly-installed screws.

20. The method of claim 13 and further comprising the steps of providing said screws with conical tapered head surfaces; and

installing an anti-backout screw with a conical head surface adapted to engage and interlock with the conical surfaces of the first-mentioned screws to prevent backout of the first-mentioned screws when the anti-backout screw is fixed in said plate.

21. The method of claim 20 and further comprising:

screwing the anti-backout screw tightly into engagement with the plate after installing the first-mentioned screws.

22. An anti-backout system for screws comprising:

a first screw having a threaded portion received through an aperture in a member and having a head prevented from movement through said aperture by a stop surface on said member, the head having a tapered exterior surface thereon; and

an anti-backout screw received in said member and having a head thereon with a tapered exterior surface matable with the exterior surface of said first screw to prevent relative rotational movement between said screws upon mating engagement of said tapered surface.

23. The system of claim 22 and wherein:

the head of said anti-backout screw seats on a stop surface on said member coplanar with the first-mentioned stop surface and is tight.

24. The system of claim 23 and further comprising:

a third screw like said first screw and having a threaded portion received through an aperture in said plate,

said third screw head being matable with the tapered exterior surface of said anti-backout screw to prevent relative rotational movement between said third screw and said anti-backout screw upon mating engagement of said tapered surfaces thereof,

the tapered surfaces of said first and third screws and said anti-backout screws having a Morse taper.